DOCUMENT RESUME

ED 054 481 CG 006 611

AUTHOR Seamons, Terry R.

TITLE The Role of Relaxation in the Desensitization Process: Guidelines and Precautions.

INSTITUTION Provo City School District, Utah.

PUB DATE Apr 71

NOTE 12p.; Paper presented at American Personnel and Guidance Association Convention, Atlantic City, N. J., April 4-8, 1971

EDRS PRICE MF-$0.65 HC-$3.29

DESCRIPTORS *Anxiety; *Behavior Change; *Conditioned Response; Desensitization; *Evaluation; Literature Reviews; Therapy

ABSTRACT

The theoretical basis for Wolpe's systematic desensitization, with its principle of reciprocal inhibition and its emphasis on the role of physiological relaxation, is explained. The author examines the literature relevant to the effectiveness of desensitization with, and without, relaxation, as well as the effectiveness of relaxation alone. All 3 areas of emphasis are found to be supported by current research, thus producing a dilemma: relaxation vs. desensitization? Two attempted theoretical rapprochements are brought to bear on the problem, both of which call into question Wolpe's neurophysiological explanation of the principle of reciprocal inhibition. Is it actual physiological relaxation (musculature) or is it cognitions which account for the success of desensitization? Other problem areas encountered in the use of relaxation and desensitization are explored. In a final, brief section, the author discusses the practical implications which these techniques have for counselors. (TL)

ED054481

THE ROLE OF RELAXATION IN THE DESENSITIZATION PROCESS: GUIDELINES AND PRECAUTIONS

American Personnel and Guidance Association Convention

Atlantic City, New Jersey, April 4 - 8, 1971

Terry R. Seamons
Provo School District
Provo, Utah

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

CG 006 611

The general field of behavior therapy has come into a prominent position in the past two decades as offering potent and practical techniques for the treatment of a variety of behavioral problems (Rachman, 1963; Ullman & Krasner, 1965; Schaefer & Martin, 1969). The efficacy of these procedures is well documented in psychological literature. The techniques included under the ruberic of "behavioral therapy" are numerous. Of these techniques, systematic desensitization of Wolpe (1958) is one of the best known and most widely used. In fact, as Lazarus & Serber (1968) noted, "In some circles, 'behavior therapy' and 'systematic desensitization' are synonymous (p. 215)."

Systematic desensitization is based on the principle of reciprocal inhibition which Wolpe (1958) described as, "If a response inhibitory to anxiety can be made to occur in the presence of anxiety-evoking stimuli so that it is accompanied by a complete or partial suppression of the anxiety response, the bond between these stimuli and the anxiety response will be weakened (p. 71)." That response which Wolpe uses most often that is "inhibitory to anxiety" is relaxation. Within the past five to six years the role of relaxation in the desensitization process has come under close scrutiny. Several studies have tried to ferret out the separate effects of relaxation and desensitization with apparent contradictory results. A closer examination of these studies as well as the technique of desensitization itself may help to clarify these apparent conflicts.

Theoretical Basis for Desensitization

Wolpe (1958) defined neurotic behavior as "any persistent habit of unadaptive behavior acquired by learning in a physiologically normal organism (p. 32). Central to his theory is the belief that all neurotic behaviors are expressions of anxiety in some form and since these neurotic habits are learned they can only be effectively eliminated through unlearning.

Wolpe believed that the characteristic of all neurotic symptoms is their persistence. He felt that these symptoms were not likely to be extinguished in daily living due to the fact that anxiety responses generate little reactive inhibition and, therefore, there is little base for conditioned inhibition to develop. The inhibitory concept is explained in terms of the neural activity at the synaptic connections. As time passes, after a response is emitted, the neural inhibitory potential dissipates. If a stimulus occurs continguously with the reduction of the fatigue-state, it becomes related to the response being extinguished in such a way that it interferes with the future occurrence of that response. The subsequent avoidance of those situations that elicit anxiety reduces the threat and thereby increases the probability that the avoidance behavior will recur. The client, then, is so busy avoiding the anxiety-filled situation that he never learns that there is really nothing to fear.

His theory is illustrative of one of the basic behavior laws, following the classical conditioning paradigm, that Schaefer and Martin (1969) describe:

"A stimulus cannot be conditioned to two stimuli which require antagonistic responses (p.52)." The following illustration typifies this point. Fear, an unconditioned stimulus, always elicits muscle tension, an unconditioned response. The contiguous pairing of a previously neutral stimulus (i.e., large groups of people) with fear eventually results in the sight of large groups of people eliciting the muscle tension. Relaxation, on the other hand, is also an unconditioned response that can be elicited by a number of stimuli of which soothing sounds is a prime example. Using the same example as before, onl with a different person, it is possible for the same neutral stimulus (large groups of people), by contiguous pairing with soothing sounds, to come to elicit relaxation. It is impossible, however, since relaxation and muscle tension are antagonistic to each other, for the sight of large groups of people to become conditioned to both fear and soothing sounds at the same time. One would come to override or inhibit the other. Wolpe claimed that by placing the emphasis on deep-muscle relaxation, the counterposed, slow, gradual presentation of increasingly greater anxiety-filled stimuli will be so weak that the relaxation will reciprocally inhibit the anxiety-filled stimuli to the point that the stimuli will no longer elicit any anxiety.

Desensitization Procedure

The prototype for this procedure is found in the classic work of Mary Cover Jones (1924). Peter was a three-year old boy who displayed an intense fear of white rabbits, rats and any other white furry objects. Previously, Watson & Rayner (1920) had demonstrated how neurotic fears were learned in their experiment with Albert and the white rat. Peter's fears were almost identical to those of Albert. Due to the fact that he was taken from the hospital before treatment began, Albert's fear was never deconditioned. To validate Watson and Rayner's original hypothesis, Jones proceeded to decondition Peter. The process was basically that of in vivo desensitization. Peter was involved in a pleasurable activity (playing). Following the systematic presentation of the rabbit at distances progressively closer from 12 feet to where he held it on his lap and fondled it, and through the eventual use of the feeding response, Peter's fear of rabbits as well as all other associated fears was overcome.

Wolpe (1961) felt that the technique of desensitization was appropriate "only after a careful assessment of the therapeutic requirements of the patient (p. 190)." Accordingly, a careful life history is taken of each client with emphasis in the areas of intrafamilial relations, attitudes toward education and work, sexual feelings, interpersonal relations, as well as other experiences which are explicitly distressing. Once the life history is taken, an attempt is made to identify those symptom-contingent cues relevant to anxiety. To aid in the identification of these relevant cues, instruments such as the Willoughby Questionnaire (Willoughby, 1932) and the Fear Survey Schedule (Wolpe & Lange, 1964) are often used. If, at this point, systematic desensitization is decided upon as the technique of choice the procedure is well established. The patient is then trained in deep-muscle relaxation via the Jacobson (1938) method. Wolpe & Lazarus (1966) present a good sample monologue which can be followed by the beginner. As the patient is trained in

relaxation (4-6 sessions) the therapist and patient together construct the anxiety hierarchies. One or several hierarchies may be needed depending on the nature of the problem. Once the patient is trained in relaxation and the hierarchies are constructed, while the patient is relaxed he is asked to imagine the various scenes of the hierarchy in ascending order starting at the bottom. The full sequence is relax, imagine, relax, stop imagining, relax. This counterposing of relaxation with the presentation of the anxiety hierarchies in proper sequence has the same reciprocally inhibiting effect on the anxiety that was demonstrated earlier by Jones (1924).

With this very brief, and perhaps oversimplified, description of the procedure, a closer examination of the separate effects of relaxation and desensitization is necessary.

Role of Relaxation in the Desensitization Process

The value that relaxation has as a therapeutic device was demonstrated in the classic work of Jacobson (1938). It was from this work that Wolpe modified the technique and incorporated it into his therapy procedure. Wolpe has never questioned the general value of relaxation, by itself. He does, however, see some drawbacks to its wide-spread applicability.

> Although some very good individual results come from use of relaxation in the life situation, there is a theoretical limitation to its value, that is borne out by my experience. That is that there is not control of the relevant anxiety-evoking stimulus constellations. On the one hand, the patient may without warning be subjected to such strong evocation of anxiety that his available 'relaxation power' is insufficient to inhibit it; on the other hand, the relevant anxiety-connected stimuli may simply not arise often enough at times convenient for optimal inhibition through relaxation (Wolpe, 1958, p. 138).

The question raised here is whether the "theoretical limitation" of the value of relaxation in the life situation is justified.

Significance of desensitization-with-relaxation. The first study which attempted to look at the principle of relaxation as a change agent was conducte by Lang & Lazovik (1963). In their study of snake-phobic subjects they found no significant change associated with general muscle relaxation. They further indicated that although relaxation was seemingly not effective independent of desensitization, they were unsure of whether it was a necessary part of the desensitization process itself.

Three of the first studies trying to tease out the separate effects of relaxation and desensitization were conducted by Davison (1965; 1968), Rachman (1965), and Lang, Lazovik and Reynolds (1965). In all cases the "traditional" desensitization groups differed significantly from the "relaxation-alone" groups in the reduction of phobic anxiety. Similarly, the relaxation-alone groups did not differ significantly from the no-treatment controls. The fear stimuli in all three studies were animals--snakes, spiders and snakes, respectively. Of the three studies, Rachman(1965) and Davison (1965;1968) attempted to answer Lang & Lazovik's (1963) question as to whether relaxation was a necessary part of desensitization. In both cases the

desensitization-without-relaxation group did not differ significantly from the no-treatment group, thus concluding that it was a necessary element.

Lomont and Edwards (1967), in an attempt to validate the principle of reciprocal inhibition as the explanatory hypothesis for desensitization, also found that relaxation was an integral part of the desensitization process, not merely by virtue of its occurrence, but because of its contiguous pairing with stimulus visualization. Since there was no control group the desensitization-without-relaxation group was only compared with the desensitization-without-relaxation group. Even then significant changes only occurred on one of the five measures of fear reduction. It is not known whether the desensitization-without-relaxation group would have shown significant reduction in fear of snakes when compared to a control group. An examination of the results of the electrodermal measure suggests that this is a distinct possibility.

Johnson and Sechrest (1968) studied the comparative effects of desensitization and relaxation on treatment of test anxiety. Their results showed desensitization to be the superior treatment as measured by subsequent examination scores, although neither treatment was found to significantly influence other anxiety measures.

Significance of desensitization-without-relaxation. Cooke (1966), in an attempt to replicate the study by Lang & Lazovik (1963), tested the hypothesis that in vivo desensitization was more effective than imaginal desensitization in rat-phobic subjects. Their results supported their hypothesis. In fact, contrary to Lang & Lazovik's study, a high level of anxiety did not impede desensitization, rather, in the imaginal desensitization group, highly anxious subjects actually showed significantly greater fear reduction. When anxiety level was not considered, there was no difference between the groups. Since in vivo desensitization was more effective in fear reduction, the question as to the role of relaxation in desensitization was again raised. The efficacy of in vivo desensitization is not in question since it is well established, but since in vivo desensitization does not involve relaxation, then perhaps relaxation isn't as necessary as once believed. This shouldn't be surprising, however, since Jones (1924) found similar results with Peter. Ritter (1968) also found similar results with in vivo desensitization.

Significance of relaxation-alone. Further analysis of the relaxation vs. desensitization controversy in more generalized areas of anxiety such as test anxiety (Laxer, et. al., 1969; Laxer & Walker, 1970; Freeling & Shemberg, 1970) and laboratory threat (Folkins, et. al., 1968) has been conducted recently and even extended to psychiatric populations in regard to interview anxiety (Zeisset, 1968). In all of these studies relaxation-alone was at as effective as desensitization-with-relaxation. In fact, Laxer, et. al. (1968) even showed that relaxation was more effective than desensitization in reducing manifest anxiety. This has definite implications for counselors in the school settings who deal more with generalized anxiety than with clinical neuroses per se.

In summary, the three areas of emphasis have been supported by current research: desensitization-with relaxation (Lang & Lazovik, 1963; Rachman, 1965; Davison, 1965; 1968; Lang, et. al., 1965; Lomont & Edwards, 1967; Johnson & Sechrest, 1968); desensitization-without-relaxation (Cooke, 1966; Jones, 1924; Ritter, 1968); and relaxation-alone (Laxer, et. al., 1969; Laxer & Walker, 1970; Freeling & Shemberg, 1970; Folkins, et. al., 1968; Zisset, 1968).

Relaxation vs. Desensitization--A Dilemma?

The question of some theoretical rapprochement to explain the conflicts of these studies has still not been resolved completely although some plausible explanations have been propounded. Rachman (1968) in reviewing the literature and taking another look at an earlier study of his (Rachman, 1965) proposed five reasons why relaxation is not essential for desensitization. First, therapeutic improvements have been obtained even though the subjects have received only rudimentary training in muscular relaxation (Paul, 1966; Rachman, 1965; Ramsay, et. al., 1966). Second, therapeutic improvement has also resulted with inexperienced experimenters (Ramsay, et. al., 1966; Cooke, 1966). Third, the effectiveness of in vivo desensitization-without-relaxation is well documented by Jones (1924), Cooke,(1966), Ritter (1968) and others. Fourth, there seems to be a lack of correspondence between a subject's reported feeling of calmness and relaxation vs. the EMG tracings during relaxation induction (lader, 1967). Finally, Wolpin & Raines (1966) reported successful treatment of snake phobics for two subjects who were desensitized-without-relaxation and for two subjects who were desensitized while tensing their muscles. On this final point, Freeling & Shemberg (1970) also found desensitization-without-relaxation to be the superior technique as compared to desensitization-with-relaxation and relaxation-alone groups, in their study involving the alleviation of test anxiety.

Rachman's question is, then, is it muscular relaxation that inhibits anxiety or is it a feeling of calmness or "mental relaxation" that is the essential ingredient? After all, the only way to get accurate readings on muscle tension is by some physiological measure and, as has been mentioned, there doesn't seem to be much correlation between physiological tracings and the subject's subjective report (Lader, 1967). In practically all of the studies referred to heretofore, only subjective reports were used as measures (i.e., Fear Survey scores, Fear Thermometer readings, Avoidance Test results, objective anxiety scale measures, behavioral ratings, etc.). While it is true that these measures may be indicative of manifest anxiety, they do not provide any measure of muscular relaxation. It is assumed that since training in "muscular relaxation" was used and since the results showed decrease in anxiety, then it means that muscular relaxation is a necessary ingredient. This is not necessarily true if one assumes that a feeling of calmness is actually what a person is "trained" to experience. Rachmam's conclusion is that although relaxation is not a necessary element of desensitization, it does facilitate the process. What is necessary is a feeling of calmness.

Another, perhaps similar, approach to this problem is proposed by Valins & Ray (1967). They conclude that the modification of avoidance behavior by desensitization is dependent upon the various cognitions which come to be associated with the emotions experienced. Their snake-phobic subjects were told that pictures of snakes did not affect their heart rate, whereas, electric shock did. They were told that their fear of snakes was not warranted. Then, they were given erroneous feedback from the physiological measures taken which they believed. The results showed those subjects who believed the snake stimuli did not affect them internally approached and held a live snake significantly more than those subjects who had no feedback as to their internal reactions. Significant in this study was the fact that the experimental group did not undergo any relaxation training or desensitization process in the traditional manner. The authors conclude that,

> Until it has been demonstrated that a muscularly relaxed subject is less physiologically responsive to a phobic stimulus than a subject who is not relaxed, we may continue to question the necessity of physiological incompatibility for desensitization therapy. Even if veridical muscle relaxation is found to be necessary, cognitions relevant to internal reactions may still mediate the behavior change (p. 350).

These last two explanations may, indeed, offer at least a partial answer to the relaxation-desensitization dilemma. These propositions do raise a question as to Wolpe's neurophysiological explanation of the principle of reciprocal inhibition. Davison's (1965; 1968) argument that the process of desensitization can best be explained by a counterconditioning model seems a bit more likely based on current research. There is still the question of the cognitive element, however, that cannot be discarded. Certainly, more research is needed to validate the role of cognitions in relaxation and desensitization.

Problems Encountered in the Use of Relaxation and Desensitization

In addition to the possible confounding effect of cognitions on relaxation and desensitization studies one might consider some other problem areas. Lazarus & Serber (1968) note one of these areas to be the misapplication of these techniques in a variety of situations. As they indicate,

> Our data suggest that the use of systematic desensitization is usually best confined to those conditions in which social action is precluded. For instance, a person who is acutely upset at the thought or sight of cripples, illness, suffering, death, etc., usually cannot remedy the situation with appropriate social action. Yet in clinical practice, the majority of patients present fears of interpersonal situations where appropriate social action is both possible and desirable (p. 215-216).

An example of potential misapplication occurred recently when a counselor referred a high school girl to this author for desensitization of what appeared to be test anxiety. Upon closer examination of this case, the girl was merely

found to have poor study habits and, therefore, did not know the material to be covered by the test. Consequently, she felt a great deal of anxiety. She was taught some effective study habits, sent on her way, and has not experienced any more anxiety in testing situations than any other high school student.

The question on whether high levels of anxiety interfere with the desensitization process is still not completely answered. Lang & Lazovik (1963) postulated that it did impede progress while Cooke (1966) found the opposite. Wolpe (1958; 1969) suggested that in those cases where tension was too great for relaxation to occur, drugs may alleviate the problem. This, however, becomes highly impractical when dealing with school children.

Another knotty problem is often encountered in areas where some conservative groups have power. In such cases care must be taken as to what the technique is called as well as avoiding any resemblance to such terms as hypnosis, etc. A case in point occurred as the author was meeting with the parents of a high school girl, for whom the technique of desensitization was to be employed, to discuss this particular technique. As soon as the mother heard the term "desensitization," she immediately thought it was the same thing as sensitivity training and said she would have nothing to do with it. It wasn't until later that she consented and counseling proceeded.

Occasionally one finds a client who cannot imagine the scenes vividly enough. The point of demarcation beyond which a client must be able to visualize is not known. In such cases it is quite possible that the technique of relaxation by itself may be efficacious.

A final difficulty often encountered, which has been referred to earlier, entails the selection of the appropriate instruments to measure relaxation or anxiety reduction. Some of the better measures of anxiety have been mentioned previously (i.e., Fear Survey, Fear Thermometer, etc.). If one is to measure relaxation per se, physiological equipment is necessary and for most schools this presents a problem. Another related problem as illustrated by the studies previously mentioned is the lack of consistent use of anxiety measures across studies. This may account for some of the reported differences. Similarly, if Rachman's (1968) hypothesis is correct, how do we measure "calmness"?

There are undoubtedly other problems encountered in the use of these techniques especially as variations of the techniques are tried. These represent a few of the more common ones the author has found in his experience.

Summary and Implications for Counselors

The role of relaxation in the desensitization process has been discussed with initial emphasis on a brief theoretical and procedural description of desensitization itself. Then, a closer look at the research which has tried to study the separate effects of relaxation and desensitization was taken. The results show contradictory findings. Although each author has attempted to explain his own research in view of that with which he is in conflict no

definite rapprochement has been made. Rachman (1968) and Valins & Ray (1967) offer some plausible explanations but these should be subjected to further empirical validation. Next, attention was focused upon some problems that the counselor may encounter in using either relaxation or desensitization or both.

This leads us to our final topic of what practical implications do these techniques have for counselors. Some of these have already been considered. The desensitization process itself is obviously available to the counselor. Downing (1971) has enumerated ways in which the relaxation process may be used. In vivo desensitization, within certain limitations, may also be helpful in some cases.

Group desensitization has become more widely used with very good results (Lazarus, 1961; Paul & Shannon, 1966; Emery & Krumboltz, 1967; and Suinn, 1968). These studies report no significant difference between subjects who undergo individual desensitization vs. those who undergo group desensitizati

Other procedural variations of the desensitization technique also have definite applicability. For use with children, Lazarus & Abramovitz (1962) have developed a technique called "emotive imagery." Here the child imagines himself as an important figure in some on-going scene which involves the anxiety-filled stimulus.

There are numerous other behavioral techniques available to the counselor. For a description of these other techniques the reader is referred to Wolpe (1969), Krumboltz & Thoresen (1969) and Ullman & Krasner (1965).

BIBLIOGRAPHY

Cooke, G. The efficacy to two desensitization procedures: an analogue study. Behavior Research & Therapy, 1966, 4, 17-24.

Davison, G. C. The influence of systematic desensitization, relaxation, and graded exposure to imaginal aversive stimuli on the modification of phobic behavior. Unpublished doctoral dissertation, Stanford University, 1965.

Davison, G. C. Systematic desensitization as a counterconditioning process. Journal of Abnormal Psychology, 1968, 73, 91-99.

Downing, L. N. The innovative use of the relaxation process in counseling. Paper presented at the meeting of the American Personnel and Guidance Association, Atlantic City, N. J., April, 1971.

Emery, J. R., & Krumboltz, J. D. Standard versus individualized hierarchies in desensitization to reduce test anxiety. Journal of Counseling Psychology, 1967, 14, 204-209.

Folkins, C., Lawson, K., Opton, E., & Lazarus, R. Desensitization and the experimental reduction of threat. Journal of Abnormal Psychology, 1968, 73, 100-113.

Freeling, N. W., & Shemberg, K. M. The alleviation of test anxiety by systematic desensitization. Behavior Research & Therapy, 1970, 8, 293-299.

Jacobson, E. Progressive Relaxation. Chicago: University of Chicago Press, 1938.

Johnson, S. M., & Sechrest, L. Comparison of desensitization and progressive relaxation in treating test anxiety. Journal of Consulting & Clinical Psychology, 1968, 32, 280-286.

Jones, M. C. A laboratory study of fear: the case of Peter. Pedagogical Seminary, 1924, 31, 308-315.

Krumboltz, J. D., & Thoresen, C. E. (Eds.) Behavioral counseling: cases and techniques. New York: Holt, Rinehart, & Winston, 1969.

Lader, M. Personal communication to Dr. Stanley Rachman, 1967.

Lang, P. J., Lazovik, A. D. Experimental desensitization of a phobia. Journal of Abnormal & Social Psychology, 1963, 66, 519-525.

Lang, P. J., Lazovik, A. D., & Reynolds, D. J. Desensitization, suggestibility and pseudotherapy. Journal of Abnormal Psychology, 1965, 70, 395-402.

Laxer, R. M., Quarter, J., Kooman, A., & Walker, K. Systematic desensitization and relaxation of high-test-anxious secondary school students. Journal of Counseling Psychology, 1969, 16, 446-451.

Laxer, R. M., & Walker, K. Counterconditioning versus relaxation in the desensitization of test anxiety. Journal of Counseling Psychology, 1970, 17, 431-436.

Lazarus, A. A., & Abramovitz, A. The use of "emotive imagery" in the treatment of children's phobias. Journal of Mental Science, 1962, 108, 191-195.

Lazarus, A. A., & Serber, M. Is systematic desensitization being misapplied? Psychological Reports, 1968, 23, 215-218.

Lomont, J., & Edwards, J. The role of relaxation in systematic desensitization. Behaviour Research & Therapy, 1967, 5, 11-25.

Paul, G. L. Insight vs. desensitization in psychotherapy: an experiment in anxiety reduction. Stanford: Stanford University Press, 1966.

Paul, G. L., & Shannon, D. T. Treatment of anxiety through systematic desensitization in therapy groups. Journal of Abnormal Psychology, 1966, 71, 124-135.

Rachman, S. Introduction to behaviour therapy. Behaviour Research & Therapy, 1963, 1, 3-15.

Rachman, S. Studies in desensitization--I: the separate effects of relaxation and desensitization. Behaviour Research & Therapy, 1965, 3, 245-251.

Rachman, S. The role of muscular relaxation in desensitization therapy. Behaviour Research & Therapy, 1968, 6, 159-166.

Ramsay, R. W., Barends, J., Breuder, J.m & Kruseman, A. Massed versus spaced desensitization of fear. Behaviour Research & Therapy, 1966, 4, 205-207.

Ritter, B. The group desensitization of children's snake phobias using vicarious and contact desensitization procedures. Behaviour Research & Therapy, 1968, 6, 1-6.

Schaefer, H. H., & Martin, P. L. Behavioral therapy. New York: McGraw-Hill, 1969.

Suinn, R. M. The desensitization of test-anxiety by group and individual treatment. Behaviour Research & Therapy, 1968, 6, 385-387.

Ullman, L. P. & Krasner, L. Case studies in behavior modification. New York: Holt, Rinehart, & Winston, 1965.

Valins, S., & Ray, A. A. Effects of cognitive desensitization on avoidance behavior. Journal of Personality & Social Psychology, 1967, 7, 345-350.

Watson, J. B., & Rayner, R. Conditioned emotional reactions. Journal of Experimental Psychology, 1920, 3, 1-14.

Willoughby, R. R. Some properties of the Thurstone Personality Schedule and a suggested revision. Journal of Social Psychology, 1932, 3, 401-421.

Wolpe, J. Psychotherapy by reciprocal inhibition. Stanford: Stanford University Press, 1958.

Wolpe, J. The systematic desensitization treatment of neuroses. Journal of Nervous & Mental Disease, 1961, 132, 189-203.

Wolpe, J. The practice of behavior therapy. New York: Pergamon, 1969.

Wolpe, J., & Lang, P. J. A fear survey schedule for use in behavior therapy. Behaviour Research & Therapy, 1964, 2, 27-30.

Wolpe, J., & Lazarus, A. A. Behavior therapy techniques: a guide to the treatment of neuroses. New York: Pergamon, 1966.

Wolpin, M., & Raines, J. Visual imagery, expected roles and extinction as possible factors in reducing fear and avoidance behavior. Behaviour Research & Therapy, 1966, 4, 25-37.

Zeisset, R. M. Desensitization and relaxation in the modification of psychiatri patients' interview behavior. Journal of Abnormal Psychology, 1968, 73, 18-24.